The Evolution of Disk Material in Young Stars

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With the Owens Valley Millimeter Interferometer, we have observed Class I and II binaries in Ophiuchus and Class I binaries in Taurus to investigate the circumstellar environments around each star in young multiple systems. In Ophiuchus, the 3-mm dust emission is limited to the primary for both the Class I and Class II systems. These results are different from observations of less evolved, similarly separated Class 0 Ophiuchus binaries in which dust emission is detected from both sources, but similar to the dust distribution seen in wide Class II binaries in Taurus. The lack of massive Class I secondary disks suggests that secondaries have a more rapid disk dissipation timescale that may negatively impact planet formation. Masses for the circumprimary disks are comparable to the Minimum Mass Solar Nebula and the masses of disks around single T Tauri stars. Combining the current data with 1.3-mm results indicates the dust opacity power law index is less than the scaling for interstellar dust, possibly indicating grain growth within the circumprimary disks. In addition to the OVRO observations which are sensitive to cool outer disk material, the Keck interferometer was used to probe the inner disk region around a set of young stars. Preliminary results from the Keck data indicate that several of the targets are spatially-resolved.